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GENERAL REVIEWS AND SUMMARIES

PSYCHOLOGICAL PROGRESS IN 1912

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In approaching our tenth consecutive survey of the annual achievements in psychology, the temptation to review the decade as a whole is strong. In a science so active as is ours at present, the ten years, however, could suffice to give only indications which might sound much as mere beginnings. And, in view of the timely readjustment of the plans of this journal to meet the task of disseminating and evaluating our new knowledge, we do not yield. We therefore limit ourselves to the year just closing. Nineteen hundred twelve has not been a twelve month which will stand out as conspicuous for a few single, great achievements. The flood of productivity has been kept to its high level, fed by the inpouring streams of the periodical and other material. The inner unity of the science, so notable towards the close of the last century, seems either to have been consciously neglected, or to have quietly disappeared amid the richer activities directed towards particular problems of methods and results. The reflective worker may well ponder the problem: Is the future of a science so young as psychology in any serious danger when it passes through movements which seem to affect a neglect of its historical continuity? The psychologist of today is actuated by a zeal for doing whatever his hands find to do, and the year has consequently shown its tendencies.

As though to overcome the loosening of its connections with the science's past, the year has given us a few interesting summaries and systematic treatises which should be mentioned first. If one may find progress by looking backward occasionally, then the most

interesting thing brought to hand is President Hall's (11) biographical chart which shows us the way by which our science has come to be. In selecting Zeller, "the scholar in his field," von Hartmann, "the philosopher of temperament," Lotze, "the harmonizer," Fechner, "the animist," von Helmholtz, "the ideal man of science," and Wundt, "a scientific philosopher," as the six founders, the author adds to the account of the fundamental advances and changes which psychology made in the nineteenth century, an intimate autobiography which illumines the source of his own permanent contributions. To the *cis*-Atlantic student, the book is of peculiar value and definite service, being filled with those rare tokens of progress that outlive the range of single years. Also through the medium of another lecture foundation, the Ichabod Spencer at Union College, Angell (1) has summed up more objectively and popularly "a just and comprehensive impression of the principal features of the psychology of today." The eight chapters become an inventory which reveals well-funded assets. Perhaps more striking and instructive is the sharp, and justly impatient criticism which Titchener (27) makes of the eleventh edition of the *Encyclopedia Britannica*. One is wholly right in regarding encyclopedic compilations as indexes of the advances made in knowledge. The sad limitations of this particular enterprise in psychology, as detailed, become a direct summary of the historical movements which have produced the facts and laws which constitute what should generously be called the currently accepted contents of our science. "There is no article ——" is the recurrent reply coming from his search for treatment of the expected topics. Rand's (20) compilation of representative selections from the writings of forty-three psychologists affords another opportunity to survey the historic background and the age-long interests of psychology. It is worth while noting that Aristotle, James, and Wundt are the three given most space, aggregating one sixth of the volume. Lotze, Fechner, von Helmholtz, and Wundt are the four in Hall's list of six "Founders" mentioned by Rand. Brett (3) presents an extended account of theories from primitive thought to St. Augustine. More technical and comprehensive systematic works showing present results and pointing the way for further activity are those by Lehmann (14) and by Wirth (31). The latter is especially notable, for its inclusion in a larger work on physiology, and its unusual attempt to extend the meaning of "psychophysics" over the whole field of "experimental" psychology. The rapid accumulation of new material in special fields of the

science is best indicated in the impressive revision and expansion of Meumann's *Vorlesungen* (15).

The particular interests of the year have been in the nature of critical reactions towards some of the work of former years. These have been most marked in the attacks on introspection, as a psychological method, the critical testing of tests, and the more secure establishment of the field of applied psychology. If the criticisms are not captious, all methodological questions are strictly fundamental (2). The recent efforts to secure an acceptable theory of introspection, whose issues confessedly involve seriously all analytic and experimental work, are a sign of growth. Dodge (5), for example, finds marked limitations of introspection, and believes it "is only one of the indicators of mental reality." Dunlap (7) is more decisive, and concludes that "there is, as a matter of fact, not the slightest evidence for the reality of 'introspection' as the observation of 'consciousness.' Hence, we must, in default of such evidence, cease the empty assumption of such a process. We might keep the word to apply to the . . . observation of feelings and of kinesthetic and cœnesthetic sensations. . . . It is probably better to banish it for the present from psychological usage." Dugas (6) goes to the other extreme, and upholds the positive, central value of introspection; because, without it not only psychology but all the other mental sciences would directly disappear. All proposed physical, physiological or social tests, with which to replace it in the science, are illegitimate. Meunier (16) appeals to the unique position of psychology among the sciences, from which it is able to oppose their conclusions with its own, and to deal with the very conditions of their methods and results. Titchener (28) admits that introspection does not furnish a psychological system. He also points out that the term is "highly equivocal"; but, he insists that "the introspection of the laboratory must be distinguished from that either of a moralizing common sense or of a rationalizing philosophy." Introspection is a scientific part of descriptive psychology; and although it shows "specific differences" in its procedure, all the forms present a generic likeness.

Two contributions looking towards the systematization and extension of methods may be mentioned. Stern's (26) renewed efforts to establish securely individual psychology as a definite branch of the science, appears in the place of a second edition of his earlier work. His main problem is that of the methods of studying individual differences or "characteristics," which are the data

usually neglected by the parent science. The results of the methods most applicable,—as the test, the questionnaire and the historical, to immediate experiences, acts and dispositions, in their four relations of the variation, the correlation, the psychography and the comparison of characteristics,—are to produce the true psychogram. The recent establishment of psychological laboratories in hospitals for the insane is the occasion for the appearance of Franz's manual (9), which by standardizing the diagnostic value of our science, will peradventure bring to a speedy end the individualizing procedure of clinicians, and also become a forerunner of further extension in the applications of psychology.

A year ago it was necessary to specify the intense interest in tests as one of the leading features of that survey. Again this interest has kept steadily alive, reaching the point of that sort of criticism which we have already indicated as a sign of progress. The test was one of the earliest forms of experimentation which was so concrete as to fill the psychologist's heart with great hopes that, by securing a performance testing some particular capacity, as discrimination, attention, etc., we should be in the fortunate position of indexing a mind with complete confidence. In those years we could not understand what is clear today, why the test should suffer taboo. The current revival of this interest may lead to the result of setting up the test as one of the distinctive achievements of present psychology. The newer tests are readily recognized, in comparison with the old, as simpler, more indefinite, unspecialized, and less discriminative. And today's confidence finds its basis in the collective readings of many tests. In surveying this field with the systematic intent of pointing the way for future activity, Stern (25) introduces a new term, "intelligence quotient," to designate the part of normal intelligence a given child possesses. Squire (24) also notes the importance of securing norms of "standard achievement for the unretarded," and suggests a method of correlating physical, pedagogical and chronological ages to arrive at this result. Hart and Spearman (12) make a methodological and an explanatory appeal to the various correlations observable among many intellectual achi vements in the recent type of tests to support their belief in the existence of a common factor which they term "general ability." Wallin (30), by selecting five tests, which "include a few of the mental functions which are basic to intellectual development," and using them in observing some conditions in oral hygiene favorable to mental development, opened up an interesting field, and discovered a variety

of indexes showing an unsuspected amount of average improvement. The value of the tendency to criticize methods, as well as the fact of the coöperative nature of our science, is shown in the second installment of the report of the special Committee of the American Psychological Association, which was prepared by Woodworth and Wells (**21**).

The third chief characteristic of our year is to be found in the increasing confidence in the scientific validity of "applied" psychology, and in the labors to perfect the procedures in seeking solution for many problems in other sciences and in the art of living. Sometimes this application means only a common-sense use of psychological insight; at other times a direct treatment of particular problems by the psychologist. At the twentieth meeting (1911) of the American Psychological Association, indication of this interest was notably shown in the presidential address, the symposium on psychology and medical education, and the section on educational psychology. The Fifth Congress for Experimental Psychology (Berlin, 1912) was characterized by a special manifestation of interest in the method and results of the applications of psychology, about one third of the forty papers presented being concerned with this field. This branch of the science was taken by Münsterberg as the theme for his Ichabod Spencer lectures early in the year. Meunier's (**16**) and Stern's (**26**) views belong no less to this field.

Among the many special interests of the year there are a few that stand out so interestingly as to deserve mention. After the appearance a few years ago of several studies on the psychology of drawing and art, chiefly in child development, interest in this topic seemed to wane. An awakening in this field has come, and we should now not be surprised to see ere long our technical methods applied to its problems (**23, 32, 18**). Drawing has very special psychological interest, inasmuch as it is an important form of mental expression, and offers a peculiarly constant means of understanding certain mental processes. In his special analysis of memory and ideation processes, Müller (**17**) promises a worthy achievement, when completed, and reports with unusual care the wonderful memory of a mathematical prodigy. The completion by Klemm of Vold's (**29**) prolonged study of experimentally stimulated dreams presents material which has permanent value, as contrasted with some results of the current attention paid to these phenomena. Ellwood's (**8**) critical review of the work of the last twenty years clears up many difficulties in studying social phenomena, and increases the fundamental value

of psychology in all efforts to understand the facts of society. The difficulty of the problems in evolutionary psychology appears no less in the cleverly selected types for study through which Holmes (13) traces the genesis of intelligence, than in the demand of Haggerty (10) that the "descriptive" terms of the past shall yield to the more useful experimental terms of the present, and in which there is an almost threatened divorce of the behaviorist from the psychologist, because the latter's concepts are too limited to exhibit the results of the "experimental analysis" of behavior, which has only begun.

The Psychological Index (19), which has been serviceable in aiding one to detect by numerical indications the ebb and flow of annual interest in the various phases of the science, has happily effected an arrangement with the *Bibliographie* of the *Zeitschrift für Psychologie und Physiologie der Sinnesorgane*, whereby a practically uniform system of classification of references came into adoption this year. This necessitated some radical changes in the distribution of the material, as shown by the following comparison, which also shows in a semi-logical fashion through the selection of rubrics certain progressive changes in the work of recent years. The old order was: general; anatomy and physiology of the nervous system; sensation, conditions and relations of consciousness; cognition; affection; conation and movement; philosophical implications of psychology; sleep, trance and pathology; and genetic, individual, and social psychology. The new order is: general; nervous system—structure and functions, sensation and perception; feeling and emotion; motor phenomena and volition; attention, memory, and thought; attitudes, and intellectual activities; special mental conditions; nervous and mental disorders; individual, racial and social phenomena; mental development in man; and organic evolution and behavior in other species. The former carried out the ten rubrics into sixty-three headings and thirty-seven sub-topics. The latter employs twelve rubrics, seventy-three headings and thirty-eight sub-topics. The *Index for 1911* contains 3,202 titles, only sixteen more than the number in 1910, representing the work of two thousand five hundred and eighty-seven authors. In view of the difficulties of comparing the relative strength of the main topics in the two years, owing to the changed distribution of the material (only three rubrics remain unchanged, a new one is added, and the tenth of the old order is divided into the tenth, eleventh and twelfth of the new) and also to the increase in the material in sense physiology and the tendency to eliminate philosophy, we refer the reader to the following table.

One cannot fail to notice a more equal distribution of material under the new classification.

1910		1911	
No. of Titles	Rubric	No. of Titles	Rubric
712	Genetic, individual and social psychology.	501	Nervous and mental disorders.
		440	Sensation and perception.
587	Sleep, trance and pathology.	309	Mental development in man.
471	Sensation.	297	Individual, racial and social phenomena.
417	Philosophical implications of psychology.	294	Organic evolution.
292	Anatomy and physiology of the nervous system.	284	Attitudes and intellectual activities.
248	General.	270	General.
171	Conation and movement.	214	Nervous system—structure and functions.
169	Cognition.		
86	Conditions and relations of consciousness.	191	Motor phenomena and volition.
33	Affection.	184	Special mental conditions.
		159	Attention, memory and thought.
		59	Feeling and emotion.
3,186		3,202	

The second year of the specially planned service of the PSYCHOLOGICAL BULLETIN to report the literature of psychology again illustrates the great range of activity. Its eleven issues devoted to general and special reviews selected material from 1911 and 1912 reaching an aggregate of over nine hundred references (not excluding duplicates), grouped under sixty-one topics. It is interesting to note, also, that this journal lists forty-four periodicals as regularly or occasionally containing papers on psychology, of which two are Italian, three British, six French, sixteen American, and seventeen German.

The annual record of the doctorates conferred by American universities being kept by *Science* (4) gives indication of a steady gain in the amount of worthy student research in psychology. This year twenty-nine degrees were conferred upon candidates presenting dissertations, twenty-five by these six universities: Columbia (eight), Clark (six), Pennsylvania (four), Cornell (three), Chicago (two), and Johns Hopkins (two). In the fifteen-year period, 1898 to 1912, during which this record has been kept, two hundred and fifty-one degrees have been conferred for work done in psychology. It ranks fourth in the list of twenty sciences aggregating two thousand three hundred and ten degrees, and is preceded by chemistry, physics and

zoölogy. Chemistry is credited with over one fourth, psychology with nearly one ninth of these doctorates. The average number of degrees in psychology conferred annually during the first ten years of the period is 13.5, during the last five years 23, and during the whole period 16.6. Over against this showing of consistent advancement in the scientific welfare of psychology are to be placed the special findings of Ruckmich and Titchener (22). Judging by financial support, by student registration, and by the number of university "hours," they conclude "that psychology, after twenty-five years of growth, does not stand very high on the honor roll among academic subjects" in American colleges and universities. It always "foots the lists." It has also been outdistanced in the academic race with its rivals of equal, or less, age, as political science, education and zoölogy. Indeed, it is not faring as well as its foster mother, philosophy.

A few additions to the list of psychological and allied periodicals have been made during the year. The *Fortschritte der Psychologie und ihrer Anwendungen*, edited by K. Marbe with the assistance of W. Peter, "aims to serve science and practice equally," the program of applications including medicine, natural science, philology, literature, æsthetics, history, pedagogy, jurisprudence, political economy, and philosophy. The *Psische: Rivista di studi psicologici*, edited by R. Assagioli, of Florence, assisted by three directors, having plans more monographic than journalistic, is to appear six times a year, each issue being devoted to a special topic. The *Zeitschrift für pädagogische Psychologie* has begun a series of monographs. The intimate relations of education to psychology give interest to the appearance of the *Archiv für Pädagogik*, edited by Brahn and Döring, the *L'année pédagogique*, edited by Dugas and Cellérier, of Paris, and the *Svenskst Archiv för Pedagogik*, edited by Hammer, of Upsala. The intention of extending psychoanalysis to the whole territory of the mental sciences has led to the new publication, *Imago*, edited by S. Freud. The *Schriften des Vereins für freie psychoanalytische Forschung*, under the direction of A. Adler, of Munich, as the journal of a new organization, indicates that dissensions among the psychoanalysts are making their appearance. The *Studies in Linguistic Psychology*, by R. J. Kellogg, of Decatur, Illinois, hopes to be interesting enough to grow into a journal.

The associational and personal interests of the science have brought it special credit, or shown a widening extension of its influences. The exhibit of apparatus and other material by the German In-

stitute of Applied Psychology at the Fifth Congress of Experimental Psychology was a distinct service. The psychophysical *Sammlung*, founded by Ebbinghaus at Halle a. S., has during the year become a greatly enlarged and equipped Institute for experimental psychology under the direction of F. Krueger, now the German Exchange Professor at Columbia University. The first Conference of the Texas teachers of philosophy and psychology was held at Waco at the very close of last year. The Institute J. J. Rousseau, under the direction of P. Bovet, has been opened at Geneva to meet the demand of teachers for instruction in psychology and pedology, and to further the scientific study of education. Renewed applications of our science are a part of the plans for the three-year course of the new École Supérieure des Sciences Pédologiques et Psychologiques, privately inaugurated at Brussels, under the direction of Mlle. Ioteyko. The creation of the office of consulting psychologist to the Nutrition Laboratory of the Carnegie Institution, filled by the appointment of R. Dodge, is a tribute to the science as well as an opportunity for approaching new problems and formulating new technique. T. Ziehen has withdrawn from teaching and the direction of the psychiatric and neurological clinic at Berlin to devote his full energy to psychological research in his private laboratory at Wiesbaden. W. Wundt, the "*Altmeister der Psychologie*," attained his eightieth birthday and retired from teaching, surrounded with such grateful honors as to make the joint event one of specific interest to the entire German people. The Wilhelm Wundt Stiftung of seven thousand marks, the material token of the occasion, is devoted by his designation to research in phonetics and acoustics, to aid in the fields of linguistics, music and social psychology.

The year's necrology includes the death of Alfred Fouillée and Hermann Munk. Psychology, as well as ethics and the history of philosophy, has been enriched by the works of the former, who was a prolific writer. His *Psychologie des idées-forces* aided in ushering in the functional point of view, and social psychology received the contributions of his studies on the people of France and of Europe. The death of Munk reminds us of our obligations to his work a generation ago on the functions of nerves and muscles and particularly on the localization of functions in the cerebral cortex.

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GENERAL PROBLEMS; MIND AND BODY

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Prominent among current discussions of the relation of psychology to the other sciences are articles concerning the place of applied psychology among the world's learned professions and concerning the importance of our present stock of psychological information to almost all scientific investigators. Seashore (18) points out the very great demand for applied psychology and describes four fields where the consulting psychologist is especially needed: mental pathology, education, technical crafts and professions, eugenics. The profession of consulting psychologist is then defined. He is a trained expert and his profession is like that of other consulting experts. "He will be a university product in the best sense, and the universities must rise to the recognition of this opportunity for usefulness." Marbe (13) has written a long introductory article for his new periodical showing in much detail the importance of present-day psychology to natural science, medicine, philology, literature, esthetics, history, pedagogy, jurisprudence, economics and philosophy. He closes his article by criticizing the little recognition psychology now receives in the curricula and examinations of German universities and by urging its recognition as a distinct subject, and as a subject essential at least as a minor for candidates in education, law and medicine.

In current philosophical discussion the special metaphysics of psychology continues to be prominent. By the special metaphysics of psychology I mean, in the first place, the following subjects: the definition of psychological fact, the rigorous formulation and limitation of the psychologist's problem and the explicit recognition of the propositions presupposed in psychological research. Though much of this discussion is carried on by philosophers, prompted by the growing revolt against phenomenalism and against all types of idealism, still much of it is carried on also by psychologists, prompted by purely psychological interests, especially by the endeavor to formulate general psychological theory. Concerning psychological facts there is the question: Do these facts include the content experienced or is that content non-mental, that is to say, are the facts under study in psychology solely processes, functions, systems of relations, including the content only in so far as the content is a term in a psychological relation? In short, is the mental fact a quality, a stuff, or is it merely a relation? In papers read in recent years at the meetings of the Aristotelian Society different positions have been taken regarding the answer to this question. At one extreme stands Moore (**17**). He begins by claiming that "there is always a distinction between *what* I am conscious of and *my consciousness* of it." It is highly doubtful if the content of sensation or of mental imagery, "sense-data," can be properly called mental. They are not acts of consciousness, nor "qualities" of such acts, nor are they "mine" in the sense in which my mental acts are mine. Hicks (**6**) takes issue with Moore on several points. The threefold distinction of act, content and object should be retained as the basis of psychology. "Neither contents taken in abstraction nor acts taken in abstraction are the real components of the actual mental life." The psychologist therefore has rightly regarded the contents of consciousness as falling within his province. "Even though they be not mental entities, yet they are factors in the development of mind, no less essential than those entities about whose character there can be no doubt." Finally, Dumville (**4**) goes quite to the other extreme, maintaining that the psychologist, in psychology, should adopt the position of subjective idealism. If he takes this position as a general basis for his metaphysics and constructs a general theory of reality out of pure psychology, insuperable difficulties are at once met; but within psychology we must regard "sense-data" as purely mental, the object of consciousness must be regarded as the product of mental process. A position similar to that of the two latter writers is taken

by Strong (19). Not only must we distinguish between the object of cognition and the content or "image" through whose agency our cognition is made possible, but we must admit that this content or "image" is psychical, is in the brain. It is not objective, it is subjective. Apart from its mental being it has no existential status. But Strong goes further and gives us a theory of "awareness" which denies that awareness is either elemental or unanalyzable or again self-transcendent in the traditional sense. By means of the image and the practical function of the image we are aware of the object. The image as such is a non-cognitive feeling. Through its function, its accompanying and connected images and especially through the reactive tendencies which it has, it gains a purely logical self-transcendence. As will has been, so now awareness should be, rejected as a psychological fact or "conscious element." In order to show how great is the confusion to-day regarding the foundations of psychology, it is interesting to compare with the statements of Strong those of Dodge (3) in an article whose general conclusions seem markedly in harmony with those of Strong. "The stuff of consciousness cannot be sensations, feelings, memory images or any of the other direct products of introspective analysis. As far as these facts are not pure abstractions, they obviously serve as building material for the complex organizations within consciousness. . . . It never seemed to me that the hypothesis of a special soul stuff helped matters much when we are forever forced to deal with that stuff and its combinations under the category of causation." "The stuff of consciousness is a logical accident. Whatever it were, the right kind of integration would constitute a kind of consciousness. I can see no reason why any stuff in the universe may not enter into a similar kind of organization, if the proper conditions are given."

Closely allied to the foregoing discussion regarding what is and is not mental fact, are attempts to limit more narrowly the problem of psychology. On the one hand, there is the attempt to exclude from psychology, *e. g.*, Husserl, what has been called "phenomenology." On the other hand, there is the attempt to formulate positively the problem of psychology as the study solely of a process. Husserl's views have called forth a defence of the older point of view from Messer (15) in which he endeavors to show that phenomenology, or the study of the immediately given (Moore's "sense-data") is a fundamental and necessary part of psychology. But the more interesting and important work is the positive attempt to formulate anew the results of psychology as the study of a process. One of

these attempts is made by Alexander (1) and is without question allied most closely to his neo-realistic tendencies in metaphysics. With Moore he would deny that the contents, images or sense data are mental. The mental is the act of experiencing, and psychology is "the science of the act of experiencing and deals with the whole system of such acts as they make up the mental life." As a name for this act of experiencing he prefers the word "enjoy." Without any reference to pleasure, this name is taken to cover any experience undergone. Alexander proceeds to show that an ultimate analysis of experiencing reduces the bipartite (Stout) classification of mental elements to one ultimate process, namely conation or attention, precisely as the bipartite classification claimed to reduce the older tripartite. Presentation is really non-mental, the difference in perceiving a star and a tree is but "the variation in some intrinsic character which belongs to *conation* as such," that is, "to enjoyment." So-called presentation belongs to psychology only as an indirect means of discovering these intrinsic characters of enjoyment. Regarding feeling he says: "I am content as at present advised to regard it as not independent of conation but as a qualification of conation. The attempt to treat it as sensory does not appear to me successful." In short, conation is consciousness and consciousness is the general form of "enjoyment." This doctrine does not require us to abandon a large part of present psychology. On the contrary it requires nothing more than the rearrangement of existing material. A similar attempt to formulate anew the problem of psychology, though governed by a different motive and point of view, is that of Joteyko (9). May we not carry over from biology to psychology the general notion of a struggle for existence and a natural selection of the fittest and see in each mental life the outcome of a survival of competing psychic elements? The belief that we can leads the author to give an elaborate reinterpretation of psychological fact and reformulation of psychological theory in these biological terms.

Besides the foregoing attempts to define and limit the psychologist's problem is that of MacDougall (11), who points out the danger of the psychologist losing a clear sight of his field of research by merging it on the one hand with the physiological processes of the afferent system and on the other hand with the reaction system. The mind is a middle term. It is not "a mere point where stimulus and reaction meet." It is "an interposed system," and "it is the existence of this mediating system which constitutes both the ground and limitation of the science."

In addition to the foregoing problems I mean by the special metaphysics of psychology the problems grouped under the heading, the mind-body relation. Both among philosophers and psychologists interest in these problems continues to be prominent. If I mistake not, two influences especially are at work in raising a new opposition to the widely held and now almost traditional doctrine, parallelism. On the one hand, there is the influence of neo-vitalism, and on the other hand, there is the influence of the functional versus the stuff theory of consciousness.

Before proceeding then, a few words should be said regarding the current discussion of vitalism. Among prominent recent articles are two, one by Jenkinson (7) defending mechanism and the other by Thomson (20) upholding vitalism. A chief point made by the former is that the psychoid of the vitalist "must be psychically at least as complex as the phenomena" it explains, and must therefore be "as much in need of explanation as they." "In fact it is only a 'photograph' of the problem, and no solution at all." Thomson on the other hand draws the conclusion: We must recognize "three orders of fact: the physical order, where mechanism reigns supreme; the animate order, where mechanism is transcended; and the psychical order, where mechanism is irrelevant." In other words, the physiological is to be explained in part, but only in part, in chemico-physical terms, and the psychical in part, but only in part, in physiological terms. Besides these two articles the discussion of the nature of vitalism begun by Lovejoy[1] has been continued by him (10) and by Jennings (8).. Jennings finds Lovejoy's interpretation of vitalism too conservative. Driesch's kind of vitalism does affect fundamentally scientific work. If Driesch is correct "then the biologist cannot from a knowledge of the total physical configuration predict what will happen, even after he has observed it"; whereas the usual working hypothesis of the biologist is that every biological fact has its sufficient and necessary condition. To which Lovejoy replies: Driesch's position "does not imply that different effects have the same antecedents; it implies only that, in an individual organism, the *same* type of effect (*i. e.*, the typical form of the species) may follow from *different* antecedents—the relation between the two sets of antecedents being such as to reveal the non-mechanical character of the action of both." In short, indeterminism is foreign to Driesch's conception of a "harmonious equipotential system."

By far the most prominent publication of the past year on the

[1] Noticed in the January, 1912, number of the BULLETIN, p. 16.

subject of the mind-body relation is a book by McDougall (12). After giving a comprehensive survey of the history of the development of animism from the earliest ghost theories to modern times and of the modern rejection of all animistic hypotheses, the author subjects these modern theories to a searching criticism. In general "in spite of the efforts of many philosophers to provide alternate solutions, we are still confronted by the dilemma, materialism or animism." The issue "between the rival doctrines cannot be solved by metaphysical reasoning, but only by appeal to empirically established facts." These facts not only support the animistic hypothesis but are explicable in no other way. Hence the author frankly adopts the soul-hypothesis. The influence of neo-vitalism and in part also of Bergson is explicitly admitted. In Carr's article (2) the influence of Bergson is complete. The problem of the mind-body relation has arisen from the impossibility of measuring psychical facts. They are purely qualitative. The solution of the problem offered in parallelism "involves an ineradicable dualism and this dualism involves a radical contradiction," the fundamental contradiction, as Bergson has shown, of asserting "that the part is the whole." Moreover, "it obscures the true distinction between the immediate data of consciousness and our knowledge of the real world of practical activity."

Meyer's (16) argument is directed especially against McDougall. Why do psychologists such as McDougall appeal in despair to the ghost theory for help? "The answer is simple. They attempt in vain to conceive of a nervous process as being capable of forcing another nervous process from its own path into a new path." But we do not need a ghost to explain this. "When a *nervous process* is forced to stream over a path other than that of least resistance, it is forced most probably by *another nervous process*." Hence the conclusion: "We must try to establish *definite nervous correlates for all the specific mental states and mental functions* which are used in and seemingly cannot be spared from our descriptions of human life in the mental and social sciences." Marshall (14) distinguishes between the concept of efficiency and the concept of causation "in the sense of unconditional invariableness of succession." To the behavior of animals the latter and not the former concept may be held to apply, provided we study them quite objectively; but when we study consciousness, efficiency and not causation appears to apply. When we carry over either concept, as we often do, into the opposite field where it may not apply, the question arises at once whether we have

the right to do so. In the mind-body relation the succession of changes is not unconditional or causal. Hence we should not attribute "a direct causal relation," but postulate "a causal influence beyond both." Dodge (3) finds "the principle of psychophysical parallelism inhibiting rather than stimulating" to the psychologist. Moreover, this theory certainly needs to be limited and modified before it fits the phenomena of inner psychophysics. "Our consciousness is obviously not correlated with the subthreshold intensity of action of the nervous system, but only with a nervous activity of definite, *i. e.*, of supra-threshold intensity." Again this theory breaks down when we really use it. "We are utterly unable to reason successfully either from known nervous facts to consciousness, or from consciousness to its nervous correlates." Finally, parallelism is "at least a confession of scientific impotence." We cannot set aside the problem "what characteristics of the nervous processes are essential to our normal consciousness." Against Yerkes' "psychical causation" Dunlap (5) maintains that unless it means mere description it does not seem to mean anything intelligible or verifiable. To explain anything we have to get beyond description, we have to bring in logical symbols as, for example, in explaining the connection between the flash and roar of a cannon by means of the notion *matter*. But even if we could explain anything purely in terms which we observe, the question would still remain whether such an explanation should be called "physical" or "psychical."

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TERMINOLOGY

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The fourteenth installment of the French "Vocabulaire Philosophique" (2) extends from *Métaphysique* to *Nous*. Among the definitions which pertain to psychology are Méthode, Mimétisme, Mnème, Moi, Moteur (type), Mouvement, Musculaire, Névrose, Notion. The discussion of the term "Nature" is particularly exhaustive; as many as eleven meanings are differentiated. In a report to the International Congress of Pedology held at Brussels in 1911, Dr. Ioteyko (1) summarizes the progress toward uniform terminology in the sciences of pedology and psychology. She repeats in outline the reports of Claparède and Baldwin to the last International Congress of Psychology (see Psychological Bulletin, 1911, 8, 20). An original feature in Dr. Ioteyko's report is her modification of Aliota's classification of the quantitative branches for pedology. She proposes six divisions, educational anthropometry (anthropométrie pédagogique), psychophysics, psychochronometry, psychodynamics, psychometry, and psychostatistics, of which all but the first belong to psychology. Stern's notation for the age of children is approved; *e. g.*, 2; 10 (15) would denote 2 years, 10 months, and 15 days.

Psychologists will be interested in the attempts made by the American Philosophical Association to define *consciousness* and *per-*

ception (4). Thirteen different uses of the term consciousness are mentioned, including consciousness as response, as an external relation between objects, as conation, and as psychic existence. The Committee makes no attempt to suggest different words for these radically different meanings. Professor Royce (3) expresses considerable dissatisfaction with the Committee's attitude toward perception.

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BIBLIOGRAPHICAL

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The new Italian review *Psiche* has started a new psychological bibliography in its first number (1). The new bibliography aims to select the literature for the use of students who are not specialists; titles of doubtful value are excluded, and each citation is followed by a few words about the contents of the work. The first installment, which deals with the most general topics, contains 41 useful references. The French philosophers have also inaugurated a bibliography of French philosophy. The bibliography for 1910 (4) contains 2,058 titles, all in the French language. Of these 479 belong to psychology and form a very useful reference list. The only criticism to be suggested is the inconvenience of referring to a bibliography confined to a single language. The Committee appointed by the Bibliographical Society of America to survey the field reports (2) the results of a circular letter sent to representatives in every field of science. Psychology appears to fare as well as any science, but there is a call for wider coöperation, especially in the less familiar languages.

We have already quoted the compilation of the complete writings of Wundt. Professor Titchener (3) follows this up with a list of the publications of Professor James Ward, which includes book reviews as well as books and articles.

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CONSCIOUSNESS AND THE UNCONSCIOUS

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The Committee on Definitions of the American Philosophical Association has attempted to compile some of the recent definitions of consciousness as a factor in a perceptual situation (15). Thirteen types of definitions are distinguished, and a bibliography is appended. Pikler (13) states that in assuming opposition as condition of consciousness he means, not polar antithesis, but mutual exclusion, "what other psychological theories call difference of stimuli." Other psychologists, however, have not worked out the implications of the resulting conflicts in the subject.

Strong, in a series of articles (18) reminds us that the term consciousness as used by the psychologist means "our feelings, emotions, desires and sensations, or rather the whole which these at any moment form," while to the logician the term means "the bare cognizing or being aware." Images (sensible data) are essentially psychic existences. Color and variety, considered as existences, are in the image or subject, and are projected into the outer world "much as the beams of a search-light are projected upon a distant ship." This psychology of awareness is that of "projectionism." Image plus motor promptings to response explains what we perceive.

Perry (12), in his chapter on A Realistic Theory of Mind, holds that mental action is a property of the physical organism, that mind "consists primarily in interested behavior," that mind is "behavior or conduct together with the objects which those employ and isolate." Dewey (3) regards consciousness as "an adjective of behavior," a quality attaching to it under certain conditions. Thilly (19) tells

us that "the mind has something to do with the way in which the object figures in the perceptual situation. We may say that in the perceptual situation an object is revealed, . . . and that this is the work of consciousness. But we must also say that much that appears belongs to the mental realm, is read into the object, sometimes truly, sometimes not."

McGilvary (**10**) develops the view that consciousness is a relation, a "unique and not further analyzable relation of togetherness"; like every other relation it will then "constitute objects into a unitary group or complex" (experience), each experience seeming to have a unique center of reference, the material body concerned plus organic sensations, emotion, etc. Like any other relation, again, consciousness "exists in individualized instances, and yet each instance is an instance of a kind." When objects enter into experience, something of "the complexity of the temporal and spatial relations" in which the real objects stand is left out, a fact explicable only on the relation-theory of consciousness.

Woodbridge (**21**) argues first, that "the distinction between an object and consciousness" can be defined "only in a situation where that distinction exists," second, "that the characteristic behavior and laws of objects, if distinguished from consciousness, are not consciousness or determined by consciousness" except in so far as empirical investigation may show them to be so determined. Consciousness is not directly efficient in a situation, but is a relation. The efficiency imputed to consciousness belongs rather to the being who is conscious. Singer's two articles (**16, 17**) reiterate his position that the meaning of consciousness is to be sought in the behavior of conscious beings. He denies that the mechanical description of experience alone, without parallel teleological interpretation, can explain conscious behavior. To find just what behavior is characteristic of mind is a problem for the psychologist. Bode (**2**) agrees with McGilvary that consciousness is selective and a "peculiar togetherness of things," and finds it hopeful that realist and pragmatist may so far agree. Nevertheless, the realist has not yet given sufficient consideration to the "unique kind of centrality" which objects possess when they enter into the relational experience. Experience and knowledge are events or processes in which things undergo a change; our standpoint must be "internal" rather than "external" to experience.

Frost (**6**) thinks that the reason for the rejection of the notion of consciousness by the more mechanistically inclined biologists and

physiologists is to be found in the fact that psychologists have not defined consciousness with sufficient clearness; it has been regarded both as a state and a process. The notion of consciousness as a state "should be relegated to the realm of pure concept," while for consciousness as a process, the term "consciousizing" is suggested. Behavior may then be "preconsciousizing" (as in infusoria), "consciousizing" (wherever development occurs), and "consciousized" (hymenoptera). In man, all forms probably exist. Consciousizing is to be regarded as a remedial process, which attends change and growth, and disappears when adjustment has been made.

Kohlhofer (8) sees in "apprehension by the ego" the essential nature of the conscious act. Unconscious psychic acts are those which cannot later be recalled, as those of early childhood, and yet leave an impression behind. Martin (11) defines consciousness as "individual awareness in a protoplasmic organism of self and not-self." It is identical with the "complex sensations of stress accompanying cell adjustment to lines of force."

The main point of McDougall's argument (9) falls outside the field of this review. Some aspects of his treatment, however, are of interest here. The author regards the unity of consciousness as "a fundamental and primary fact," though we learn later that he is willing to admit the possibility of several psychic beings in the same individual. The ground of this unity is to be found in a permanent soul, "a sum of enduring capacities for thoughts, feelings, and efforts of determinate kinds," consciousness arising apparently only when the permanent substrate interacts with some bodily organism. It may be that "the soul that thinks in us is but the chief of a hierarchy of similar beings, . . . and that, if the subordinated beings exercise in any degree their psychic capacities, the chief soul is able, by a direct or telepathic action, to utilize and in some measure control their activities." This is suggested as an explanation of cases of apparently co-conscious personalities. All impressions made on the soul are not necessarily united in the stream of personal consciousness; this, the author agrees with Janet, may be only possible at the expenditure of a certain amount of psychic energy which produces a conscious synthesis. In the early stages of bodily development the soul may control actions in all parts of the body, and perhaps only gradually does it become restricted to the central nervous system. It built up the vegetative functions of the organism, and is perhaps the bearer of heredity.

The most complete recent treatment of the subconscious is that

by Weingartner (**20**). Conceptions of the unconscious and of the subconscious are quite different. The unconscious is used to include (*a*) physiological dispositions, (*b*) psychic activities (the soul as carrier of consciousness, unconscious normal activities, psychic dispositions), (*c*) unconscious sensations, (*d*) the notion of Lipps that ideas, themselves unconscious, may affect consciousness. Conceptions of the subconscious include (*a*) that of a hierarchy of higher and lower spheres of consciousness (Fechner), (*b*) the obscure content of normal consciousness, (*c*) the idea of a separate consciousness in the individual, either normal (Dessoir, Hartmann, James) or abnormal (Janet, Binet), (*d*) mental functions connected with lower brain centers. Against these conceptions, so far as they include any unconscious or subconscious psychic activities, Weingartner brings the indictment that they are so ambiguous and variable that they are of little value in scientific work. Partially weakened memory, changes in psychophysic basis, margins and fringes are better explanatory concepts. To explain by calling a process subconscious is, as Wundt holds, merely to explain by giving a name to a phenomenon. The author then runs over the evidence for the existence of a subconscious element in religious conversion, belief, prayer, ecstacy, and refuses from the evidence at hand to accept any solution of the problems of the psychology of religion based on the activities of the subconscious.

Prince (**14**) presents the thesis that the setting which determines the meaning of ideas "may be, and usually is, partly conscious and partly unconscious." Evidence for the unconscious determination of meaning is found in the analysis of pathological cases, and, synthetically, in the building up of new settings in hypnosis, which, though themselves remaining unconscious, determine the meaning of conscious ideas.

Dunlap (**4**) argues against conceiving the subconscious as the guardian of automatic and reflex movements, or the repository of forgotten ideas. Recall of previously unnoticed percepts is based on marginal consciousness. Furthermore, "we are justified in concluding that the assumption of a detached subconsciousness or co-consciousness to explain the phenomena of alternating personality is not at present defensible since the identical problems involved in these phenomena are quite like those involved in all mental life, and the problems of neural disposition and modification are not affected in any way by the hypothesis of co-consciousness."

Gardner (**7**) would recognize both a subconscious and a super-

conscious mental life, and stresses the importance of these concepts for religion. Paganism stressed the subconscious, the Stoics, Confucius, etc., consciousness, and Christianity, the superconscious. Arréat (1) holds that while the rôle played by the unconscious is important, and may furnish us with the secret of instinct, we must not exaggerate its importance as do many of the "anti-intellectualists" or blind ourselves to the importance of voluntary effort.

Ferrari (5) propounds a most ingenious theory for the basis of our emotional and subconscious life. It is impossible to give in brief compass any adequate conception of the working out of his hypothesis, except to say that emotion and subconscious acts, tendencies, interests, possibly habit, are based on the activities of the "autonomic" nervous system as described by Langley. The reader is referred to an extended review of the article by Dr. T. L. Smith (*Amer. J. of Psychol.*, 1912, **23**, 464–468).

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TEXT-BOOKS AND GENERAL TREATISES

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The most useful and thorough text-book of the year, which unfortunately is in German, is that of Elsenhans (6). There are 434 large octavo pages of text including a large bibliography at the end of each section, beside countless references to classical and modern authors throughout the text, an author as well as a subject index, and a minute table of contents of 15 pages.

The aim of the author is to present the fundamental principles of a psychological system, principles gained both from systematic observation under the artifical conditions of experimentation and under the natural ones of general observation, in such completeness, thoroughness and interconnection as to give to the student, who may wish to do further work in the discipline or may desire to use psychology as a help in other sciences, a firm and trustworthy foundation. Emphasis is not laid upon experimentation and for an intimate knowledge of methods and tabulated results the reader is referred to Ebbinghaus, Külpe and Wundt. Although the system is a well-rounded one the author states that the subjects of association, feeling, will, memory, imagination, character, forms of expression and social psychology have been given more minute and systematic treatment. Elsenhans acknowledges his deepest indebtedness to the influence of Sigwart, Lotze and Wundt.

The book opens with the concept of psychology, then follows a short history of classical and modern psychology, the latter being divided into schools such as the metaphysical psychology of Drobisch, Lazarus and Volkmann, and empirical psychology, which is subdivided into the psychopathology of Kraepelin, Möbius, and Binet,

the psychology with a physiological trend of Exner, James and Münsterberg, the psychology of the Würzburg school, etc. The *American Journal* and the PSYCHOLOGICAL REVIEW are mentioned among the publications, the latter being, according to Elsenhans, still edited by Baldwin, Warren and Judd. The author shows a decided lack of knowledge of American literature. At least he has sadly neglected it. Of approximately six hundred authors mentioned only fourteen are Americans and most of these have written in German.

A chapter upon methods, including a discussion of the difficulties of introspection and how they can in part be overcome, precedes a long chapter upon the relation of mind to body, which shows a strong preference for the theory of interaction. The sensations are introduced by a chapter upon the nervous system, illustrated by cuts of the brain, nerves and spinal column, and by a section upon the measurement of sensations, and Weber's law, together with its meaning and its limitations. There is not much space devoted to the sensations, yet the chapter on vision, for example, contains a good cut of the eye and of a cross-section of the retina, beside sections upon the fundamental colors, the laws of color mixture, intensity as related to quality, adaptation, after-images, contrast, color blindness and five different theories of color vision, of which Elsenhans thinks Wundt's has the advantage from a psychological point of view.

The most general concept of idea (*Vorstellung*) which includes sensation, is adopted by the author and used with specializing prefixes such as sensation, memory, imaginal, etc. The association of ideas and the factors which produce reproduction, such as the unconscious and the middle links, are described. The chapter on the thought processes includes the theories of the Würzburg School and the section on concept, judgment, etc., which makes several references to Sigwart's Logik, points out the fact that introspection finds that the act of reasoning is almost invariably in the form of the enthymeme.

The portion devoted to space includes tactual as well as visual space. It gives several pages to illusions and ends with a discussion of the nativistic and empirical theories. Wundt's theory of localization as developed from the theories of local sign of Lotze and Helmholtz is accepted. A short section on time, dealing principally with filled and unfilled time intervals, is followed by a section on the idea of a connected outer world. In the extensive chapter upon feelings one finds, among many others, sections upon sensation, esthetic, intellectual, ethical and religious feelings.

Among the points of interest of the last hundred pages might be mentioned the following: Of the theories of the will the autogenetic, which assumes an elementary will quality, is selected. In a discussion of the freedom of the will the most important fact for the psychologist is that of the consciousness of freedom. The subconscious is not to be interpreted in physiological terms, but enjoys an individual existence. The section on sleep and dreams contains a long quotation from Freud illustrating his method. Under speech and thought is given the physiological basis of speech and aphasia and a paragraph on graphology. The theory of attention follows closely that of Wundt. The chapter upon memory and imagination includes data from numerous experimental studies. The subject of the development of mental life includes the question of natural disposition and inheritance, child psychology, bodily expressions, and social psychology. Concepts of suggestion and hypnotism and a section on mental disorders are given. The book closes with a discussion of the fundamental principles, *i. e.*, the relation of the soul to time and space, the concept of a soul substance, and psychic causality.

For the experimental psychologist the most important book is the *Grundzüge der Psychophysiologie* of Lehmann (8). The guiding principle is Lehmann's energy theory, which he propounded in the second part of his *Körperliche Äusserungen psychischer Zustände* and which states that "the psychic phenomena are dependent upon a peculiar form of energy, which is caused by a transformation of the chemical energy of the central nervous system and which obeys the general laws of energy."

The book is arranged to show how the facts drawn from physics, physiology, and the different manifestations of consciousness elucidate and substantiate this theory. These facts are taken for the most part from experiments which the author himself has conducted and from his own numerous self-observations, and are published here for the first time. The more important results of others are described and for the rest one is referred, as far as possible, to books containing general summaries.

The volume is divided into four books. The first, called Body and Soul, treats of the phenomena of consciousness in general and their physical and physiological relations. The second book, called Psychophysics, bears upon the simple psychological phenomena and their relations to external stimuli. The third book, termed Psychodynamics, considers the relations of the psychological phenomena

among themselves, and the fourth book treats of the psychological complexes resulting from these relations. Anatomical sketches, formulæ, tabulated numerical results and curves and schematic diagrams abound. The laws deduced from the data given are printed in italics.

After a discussion of the relation of body and soul, which includes a tabulation of the weight of the brains of various animals, a chapter is devoted to the laws of energy and its transformation. Muscular work in general in its relation to dissimilation and assimilation is also discussed. Then follows the physiology of the nervous system and the latest facts in nerve conduction and inhibition. The part upon the sensations reminds one in treatment of Nagel's *Handbuch*. The anatomy, physics, physiology and psychology of the several senses are given in clear detail. This section of the volume ends with a description of the feelings, especially as regards their relation to the kind, strength and duration of the stimulus, and to the general bodily and mental conditions.

The first part of the psychodynamics is upon inhibition and facilitation. The phenomena of color and brightness contrasts are treated as inhibitions and come, therefore, under this head. We also find here associations and reproductions. In the second part, upon psychic activity, attention is treated at length, the description including the conditions of attention, the effects of concentration and distribution, and the attitudes (*Einstellungen*). In this part we also find the subject of the limen and the measurement of sensation, memory and imagination, and thought.

The last book includes time and space, a short chapter on the ego and its activities and a section on the emotions. The last few pages are devoted to the will, temperament and character. It will be seen from the subjects just mentioned that the book is not as restricted in scope as the title might imply.

The only American text-book that has appeared this year is that by Dunlap (5). We read in the preface that the author's "greatest effort has been to present as consistent and systematic a sketch as possible of the general field of normal human psychology, elaborating the details only where they are essential to the general survey" and that "the book is not designed to be made the sole basis of a course in elementary psychology," but should be supplemented by explanatory lectures. There is very little physiology and no detailed account of experimental methods or results. The author has shown originality both in the arrangement of the subjects and in some of the fundamental concepts.

As has been the case in other recent text-books, so here also the sensations have not been arranged according to the different senses, but in reference to the different attributes. For example, one chapter is devoted to quality, another to protensity and extensity and another to local significance. Relations are considered elementary forms of consciousness. Pitch is included under the attribute of extensity. Throughout the book there is a great effort to define carefully the different concepts used. Many technical terms not usually found in text-books are introduced. The book closes with chapters upon the subconscious, the ego and the occult.[1]

In the third edition of her *First Book in Psychology* Calkins (3) states that the "revision . . . has been made with three main ends in view: to emphasize the essentially social nature of the conscious self, to accentuate the fact that the study of the self, as thus conceived, involves a study of behavior and finally to prune the book of expressions which lend themselves to interpretations in terms of an atomistic psychology." The three important changes in concepts, those of attention, of will and of time, seem to have been caused by a reaction against the strictly sensational-descriptive psychology of the Cornell school. "Attention is, in truth, an unique attitude, a basal relation of self to object." "This conception may, but need not, be combined with the teaching that there is a structural element of clearness, or attended-to-ness." In the concept of will more emphasis is laid upon the inadequacy of a structural analysis to explain entirely the will consciousness. "The awareness of dependence-on-me is itself irreducible to impersonal terms." In the conception of time there is a certain elemental experience; " . . . structurally analyzed it probably includes an unsensational and distinctive element."

Natorp's book (9) is, as the author says, a philosophy of psychology. He has been actuated by a desire for clarity in the logical problems of psychology and for strict, well-defined concepts as a foundation for the science. The method is that of a logical investigation of the fundamentals, which, since Kant, has been called the critical method. The book is a revision and enlargement of his *Einleitung*. Only a small part, however, consists of the former thoughts and then seldom are they strictly in the old form. This first volume is merely a foundation of a foundation of psychology. The second volume, soon to appear, will consider general phenomenology. A third volume, dealing with the genetic side, may follow.

[1] See special review below, p. 35.

Natorp, in view of his monism in psychology, holds that a discipline which desires to proceed as an objective science, as a system of explanatory laws, cannot be called psychology. How is it with so-called descriptive psychology? This is a study of consciousness and here subject and object are identical, for the object X is determined by the consciousness A and thus ceases to exist as X in opposition to A. It would seem from this that description is psychology, but description deals with facts and as facts are objective, we cannot apply the term psychology to it any more than to explanation. Furthermore description involves abstraction and abstraction halts the stream of consciousness. Psychology must take cognizance of this eternal onward movement. This brings us to Natorp's main theme: The method of psychology must be one of reconstruction, a reconstruction closely following the Kantian principles, but with the distinguishing characteristic of emphasising the ever active process, as it was first expounded by Natorp twenty-five years ago. Description, or as it is most frequently spoken of, descriptive psychology has, however, a very important function to fulfill. According to Natorp the problem of the psychic as subjective, which for him is psychology, only appears after the far-reaching search for an object knowledge has long been in progress. That is, the reconstruction is a system which has grown out of the facts as supplied by descriptive and genetic psychology.

The last chapter discusses the principles fundamental to and characteristic of the theories of Wundt, Lipps, Husserl, Dilthey, Münsterberg and Bergson.

Smooth and intelligent translations have made two German books more accessible to English readers. Wundt's (11) short introduction, consisting of five chapters on consciousness and attention, the elements of consciousness, association, apperception and the laws of psychic life, will be welcomed by the student who wishes a comprehensive idea of the author's theory of apperception and his tridimensional theory of feeling and the manner in which he uses them to explain the thought processes. Dessoir's *Outlines* (4) is not a mere abridgment of his longer history. As the author states, "it offers a less detailed account than does the *History*, but on the other hand it covers broader fields." The history brings us as far as William James. No living psychologists are mentioned.

Rand (10) has given the psychologist, who is interested in the history of his problems, a very excellent and inclusive book. It was the idea of the compiler to select those psychologists and from

each the theories which have meant most for the development of the science. The book includes forty-three authors from Anaxagoras to Wundt and about twenty pages are devoted to each. We find represented the important Greek philosophers and those of the Middle Ages, the English Associationists and the Scotch School. From the French Descartes, Bonnet, Condillac, and Maine de Biran have been selected. The Germans are very well represented. Of the living psychologists Hering, Mach, Stumpf and Wundt are included. As examples of the manner of selection we might add that James is represented by his chapters on the Stream of Consciousness, and on the Emotions; Stumpf by his Degrees of Tonal Fusion and Cause of Tonal Fusion; Mach by his Sensations as Elements and his Space Sensations; and Helmholtz by his Theory of Color Vision. A number of the translations are published for the first time.

The lectures which Angell (1) delivered at Union College have recently been published. They are in semi-popular form and give a sketch of the entire field of psychology, including abnormal, applied and animal psychology.

Hall's (7) lectures upon *The Founders of Modern Psychology* which were "designed to give a general idea of the personality, standpoint and achievement" of Zeller, Lotze, Fechner, Hartmann, Helmholtz and Wundt will no doubt be of interest to many.

The translation into German of Aristotle's (2) psychology will, apart from the fact of the cheap form in which it is published, hardly interest the English student, who already has several excellent translations in his own language.

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4. Dessoir, M. *Outlines of the History of Psychology*. Translated by Donald Fisher. New York: Macmillan, 1912. Pp. xxix + 278.
5. Dunlap, K. *A System of Psychology*. New York: Charles Scribner's Sons, 1912. Pp. xiv + 368.
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7. Hall, G. S. *Founders of Modern Psychology*. New York: D. Appleton and Co., 1912. Pp. vii + 471.
8. Lehmann, A. *Grundzüge der Psychophysiologie*. Leipzig: O. R. Reisland, 1912, Pp. x + 742.

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10. RAND, B. *The Classical Psychologists.* Boston: Houghton Mifflin Company, 1912. Pp. xxi + 734.
11. WUNDT, W. *An Introduction to Psychology.* Translated from the second German Edition by Rudolph Pintner. New York: Macmillan, 1912. Pp. xi + 198.

APPARATUS

BY PROFESSOR C. E. SEASHORE

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The Cornell Laboratory (1) has set a good example in reporting detailed specifications for the following five pieces of apparatus. It is very desirable that the various laboratories should adopt the plan of describing fairly permanent pieces of apparatus apart from the report of the research.

Sound Localization Apparatus.—This apparatus consists essentially of a well-mounted and graduated curved arm which may carry a sounding apparatus such as a telephone receiver or a tuning fork, in any direction from the center of the head, under controlled conditions. It is built on excellent lines, but its use is limited. On the basis of years of experience with a perimeter (see PSYCHOL. REV., 10, 64 ff.) the reviewer would suggest the following modifications to make the Cornell apparatus of more general use: (*a*) For the production of sound fusions, or phantom sounds, mount another arm to move in the same way and in the same plane as the present arm. (*b*) To facilitate measurement in the vertical direction, mount a third arm at the side moving at right angles to the line of the other two arms. (*c*) Take off the head rest which is a serious distraction and substitute a system of sighting for the alignment of the head. (*d*) Make the apparatus portable. (*e*) Convert it at will into a first-class color perimeter by mounting a Helpach lantern for color stimulus in place of the sound stimulus.

Rhythm Interruptor.—This provides for all the necessary control in the ordinary rhythm experiment, and would seem to be very serviceable. An electric phonograph motor is used to drive the apparatus. This is reported as having an error of ± .9 per cent., which is not accurate enough for the finest measurements, as some persons can perceive deviations of that amount. For the finest work in rhythm, the best available source of power and speed control

is a synchronous motor, which may have an error of less than ± .0008 of a second. Such a motor can of course be attached to this apparatus in place of the phonograph motor.

Rhythm-box Controller.—This consists of a Stoelting rhythm-box equipped with a device for starting and stopping the metronome in the box noiselessly and with precision.

Rhythm Hammer.—This hammer may be used in setting up any desired pattern of rhythm. It is well adapted for demonstration purposes, and may be used for fine work if driven by a constant speed motor.

Automatic Tuning-fork Hammer.—This hammer is designed to produce an accurate and controlled stroke and to dampen the fork with precision.

Brown (**2**) describes a method of measuring short intervals which could very easily be used in reaction time experiments in psychology. His measurement depends upon the principle that the time interval varies directly as the throw of a ballistic galvanometer which has been connected in a particular way through a Wheatstone bridge circuit during the interval. The method is capable of a sufficiently high degree of accuracy for ordinary reaction time experiments, and the apparatus could be built at a very reasonable cost.

Dunlap (**3**) gives an account of what seems to be a very serviceable laboratory pendulum that will swing for more than an hour with a high degree of accuracy. Full specifications for construction are given.

In the article in the *British Journal* (**4**) he discusses the advantage of working without the springs on the Hipp chronoscope, and reports the results of tests under these conditions.

Ferree (**5**) states that "the object of this apparatus is to add to the vertical campimeter the rotary features of the perimeter, and thus to allow investigation of every possible meridian of the retina with as much ease and precision as was possible with the old form of campimeter in the nasal meridian only, or at most, in the nasal and temporal meridians." For full description one must consult the original. To the reviewer it seems unfortunate that the apparatus was not built for operation on the surface of a hemisphere rather than on a plane surface.

Martin (**6**) has given us a useful manual for the quantitative use of faradic stimuli, from the point of view of the needs of the physiological laboratory.

Michotte (**7**) describes what seems to be a very excellent form of

a tachistoscope which is capable of accurate and very wide range of use. It may be employed as an ordinary shutter; two exposures may be made upon the same point of the retina under controllable conditions of time, space, and intensity; the exposed objects may be magnified; and the conditions of adaptation may be varied. It seems probable that all the important sources of error in apparatus for tachistoscopic experiments have here been eliminated. The instrument is made by Zimmerman in Leipzig.

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SPECIAL REVIEWS

DUNLAP'S SYSTEM OF PSYCHOLOGY

A System of Psychology. KNIGHT DUNLAP. New York: Charles Scribner's Sons, 1912. Pp. xiv+368.

Professor Dunlap has designed his book for semi-advanced students. He has desired to present a sketch, as systematic as possible, of the general field of psychology. It does not, however, seem that he has succeeded as well in presenting a connected series of facts as he might have done had he written a conventional text-book. It would perhaps describe the book better if one called it an introduction to a system of psychology, for the impression one receives is that of a collection of definitions. One finds very few references to experimental data. It was undoubtedly Dunlap's idea that such references would be out of place in a "system," but in consideration of the manner in which the book has actually been planned and the fact that the author ranks among the leading experimentalists, it is a question whether it would not have gained greatly in value if they had been more generally included.

The author believes that psychology should not at present be divorced from philosophic theories. This is undoubtedly true, but in introducing philosophy into a psychological treatise one must have constantly in mind the danger of wandering into fields no longer psychological. This is an error Dunlap has at times made, for example, when under perception he gives us a section upon the determination of perceptual truth and falsity, a subject which is only in place in a logical or epistemological treatise.

The definition of psychology adopted by the author reads as follows: "psychology is the study of experience: of the reference of experience to its content: of any direct reference it may have to a subject of experience: and of the content of experience in so far as it is directly related to experience." It will be seen from this that the author separates function from content. Whether or not in Dunlap's opinion this separation is justified by an analysis of consciousness is not clear.

Of the three elements of consciousness usually accepted, namely sensations, feelings and images, Dunlap rejects images as specific

contents. As far as we can gather from the text, it seems that Dunlap places the specific character of imagination in the act of imagining, in the "way of being conscious" and not in the content, which may be a "revived or false sensation" or "actual normal sensations from the various organs." On the other hand he adds relations as elements of consciousness.

Sensations are treated in general and then the qualities of sensations. We learn that there is only one elementary quality in audition. From this statement the reader will probably expect differences of pitch to be classed as differences of intensity. He will find, however, that Dunlap identifies differences of pitch with differences of extensity. He says that "on purely psychological grounds pitch is analogous to extensity of visual and tactual sensation." Now it seems to the reviewer that there are very reliable psychological data which refute this theory, for in the middle register there is little or no variation in the extensive attribute and there should, therefore, be a correspondingly slight change in pitch, which is contrary to the facts. Dunlap admits that "extensity itself can be estimated only approximately by direct observation" and therefore to help out his theory he brings in local signs, which he believes attach themselves to the notes according to "the group of end-organs at which the excitation on the basilar membrane ends," and aid in the more accurate estimation of the correct pitch. In fact, according to Dunlap it is the musical ear especially which arranges the tones in their proper places in the scale by means of the local sign. Now local sign, if it means anything, is a qualitative attribute of tone and there is no doubt that it is this attribute that most psychologists call pitch. There does not seem, indeed, any reason why this term should be transferred to the attribute of extensity.

There are chapters upon threshold, intensity, protensity, extensity and local significance. It is unfortunate that the chapter upon the relational elements is so short. In the next chapter, which includes a description of the difference between concrete and abstract ideas, Dunlap retains the term image, although, as pointed out above, he does not consider that it covers an unique content of consciousness. Problems of memory and recall, retention and association follow. Perception includes time and space perception as well as the perception of things.

In his chapter upon feeling the author indicates his attitude toward the subject in his statement "that any analysis of the emotions which attempts to reduce them to sensations alone, or to sensations and affective elements is inadequate."

After a description of action and a short chapter upon the empirical ego, in which it is stated that "the body . . . is fundamentally the self," there follows a chapter upon the degrees of consciousness, which includes vividness, attention and judgment. The last is placed here for the reason that concept and judgment differ solely in the "matter of relative vividness among the factors of these complexes." But may not all manner of change occur in the relative amount of vividness of the parts of a concept without that concept going over into a judgment? Rhythm, fluctuation of vividness, etc., are treated under the time relation of consciousness.

The book closes with short chapters upon the subconscious; upon the ego, which, in contradistinction to the empirical ego, is considered transcendent and therefore assumed; and upon the occult. It is surprising that there is no chapter upon thought and its determining tendencies.

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GENETIC PSYCHOLOGY

Psicología Genética. JOSÉ INGEGNIEROS. *Arch. de psiquiat. y crimin.*, 1911, 10, 1–354.

North American psychologists should not overlook the recent progress of psychology in South America. In the Argentine Republic especially a number of investigators have recently made original contributions which deserve to be noticed. At the University of Buenos Aires, J. Ingegnieros, F. de Veyga, and C. Rodriguez-Etchart are working in social and criminal psychology and kindred lines. The BULLETIN has received a number of brochures by these writers printed under the auspices of the Argentine National Penitentiary. The Psychological Society of Buenos Aires issued in 1910 the first volume of *Anales de psicología* containing their original contributions to psychology for the year 1909. We are not advised whether this is to appear annually. Another Argentine periodical, *Archivos de psiquiatría y criminología*, is now in its eleventh year.

Dr. Ingegnieros's article on Genetic Psychology fills a double number of the latter magazine. It is an elaborate treatise of 350 pages, which aims to establish the claims of psychology to be regarded as a natural science by applying to it the data and methods

of biology, and to refute the scholastic system of psychology which still holds sway in many Latin countries. The author is clear and logical in his arguments, though his explanations are often too diffuse and he tends to over-elaborate the analysis. He shows encyclopedic familiarity with the history of psychology, biology, and philosophy, citing countless authors of all lands and ages, from Plato and Democritus in ancient Greece to James and Baldwin in modern America.

In discussing the biological foundations of psychology Ingegnieros proposes a theory of organic life, based on the radioactivity of matter; his world-view is a form of evolutionary monism.

Consciousness is regarded as a specific character of certain psychological processes (p. 275; cf. 136, 311), but it is not a character of all mental states, since the term *psychological* is applicable to many biological phenomena which are unconscious (p. 105). "For biological psychology, the conscious functions are a useful variation of the mental functions in the course of organic evolution" (p. 311). The author defines the relation of excitation to sensation and personality as follows: "(1) An *excitation* is a disequilibration caused by an external or internal force; when the excitation is known or felt by the subject we say that it is conscious and call it *sensation*. (2) The continuous and systematized memory of conscious excitations, or sensations, constitutes the conscious experience which results in the gradual formation of *conscious personality*. (3) An excitation is conscious (*i. e.*, sensation) when it determines reactions *related to previous experience, i. e.*, to conscious personality" (p. 298).

The foundations of comparative psychology are discussed at considerable length, with special reference to the contributions of Darwin, Romanes, and recent writers; but the results of experimental investigations by Thorndike and others are only briefly mentioned. The same lack is to be noticed in the author's study of mental development in the child, although here the names of 42 investigators are given. A long section is devoted to the thought process viewed as an evolutionary product; the author follows rather closely Baldwin's view, as elaborated in his *Genetic Logic*.

Space will not allow us to present an analysis of the work. The titles of the sections will indicate the subjects treated: Scientific psychology, Genetic psychology, The origin of living matter, Biological energetics and mental function, Comparative psychology, Social psychology, Individual psychology, The thought function, The conscious mental functions, and The methods of psychology.

It is to be noticed that the author lays special emphasis on external observation as a psychological method, and is inclined to minimize the importance not only of introspection but even of experimental research. The work lacks the finer details of analysis and does not give the data concerning the growth of particular functions that one would expect to find in so extensive a work. As a study of the groundwork and history of genetic psychology it is quite exhaustive; but it does not meet the requirements of a systematic treatise or text-book.

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BOOKS RECEIVED DURING DECEMBER

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JAMES, W. *Psychologie und Erziehung.* 3. Aufl. (Trans. by KIESOW, F.) Leipzig: Engelmann, 1912. Pp. x + 134. M. 1.

RENOUVIER, C. *Traité de Psychologie Rationnelle d'après les principes du criticisme.* 2 vols. Paris: Colin, 1912. Pp. 398, 386. 16 fr.

NOTES AND NEWS

DR. W. S. HUNTER (Chicago) has been appointed instructor in psychology in the University of Texas. DR. F. A. C. PERRIN (Chicago) has been appointed to a similar position in the University of Pittsburgh.

DR. C. E. FERREE, associate professor of experimental psychology at Bryn Mawr College, has been appointed director of the psychological laboratory.

At the recent meeting of the American Psychological Association at Cleveland, Professor H. C. Warren (Princeton) was elected president for the coming year. Professor W. V. Bingham (Dartmouth) continues as secretary-treasurer.

The American Philosophical Association has elected Professor E. B. McGilvary (Wisconsin) president and Professor H. A. Overstreet (College of the City of New York) vice-president for the ensuing year. Professor E. G. Spaulding (Princeton) continues as secretary.

The following items are taken from the press:

The psychological laboratory at the Sorbonne, founded and for many years directed by the late Alfred Binet, will be conducted by Professor H. Piéron. The *Année Psychologique*, the current number of which has been prepared by Simon and Larguier des Bancels, will be continued under Professor Piéron's editorship.

Dr. Edward L. Thorndike, professor of educational psychology in Teachers College, Columbia University, will give a course of lectures on the Ichabod Spencer Lecture Foundation at Union College in February and March.